

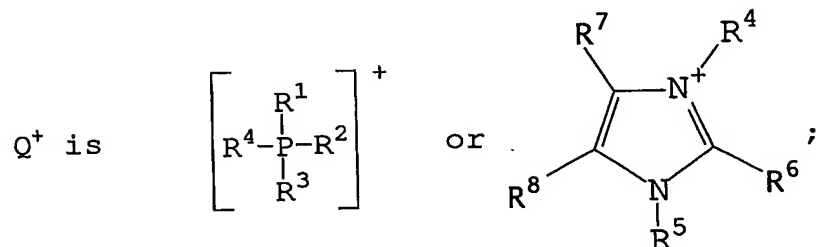
CLAIMS:

1. A compound having the general formula (I):



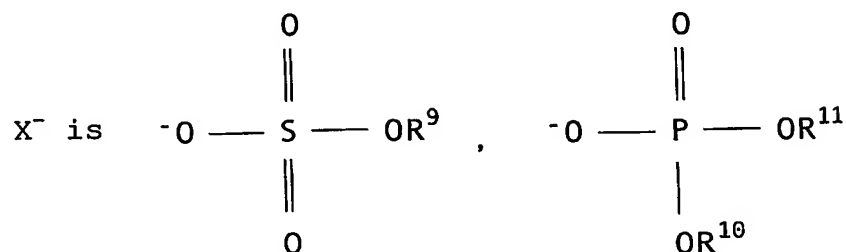
wherein

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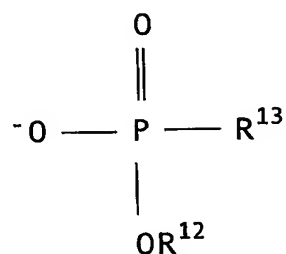


and

10



or



15 and wherein:

each of R^1 , R^2 , R^3 , R^4 , R^5 , R^9 , R^{11} , R^{12} and R^{13} is independently a hydrocarbyl group;

each of R^6 , R^7 and R^8 is independently a hydrogen or a hydrocarbyl group;

20 with the provisoes that:

(i) when Q^+ is a phosphonium cation and X^- is a phosphate, or a phosphonate anion other than a phosphonate in

which R^{13} is perfluorohydrocarbyl, then R^1 , R^2 , R^3 , and R^4 each has three or more carbon atoms;

(ii) when Q^+ is a phosphonium cation and X^- is a sulfate then the sum of carbon atoms in R^1 , R^2 , R^3 , and R^4 is
5 greater than 4;

(iii) when Q^+ is an imidazolium cation, X^- is not a sulfate anion; and

(iv) when Q^+ is a phosphonium cation, X^- is methylsulfate, and one of R^1 , R^2 , R^3 , and R^4 is methyl, the
10 others of R^1 , R^2 , R^3 , and R^4 cannot be 2-cyanoethyl.

2. A compound according to claim 1, wherein Q^+ is a tetralkylphosphonium and X^- is an alkylsulfate anion.

3. A compound according to claim 2, wherein R^1 , R^2 , and R^3 are hydrocarbyl groups with three or more carbon atoms.

15 4. A compound according to claim 2, wherein R^1 , R^2 , and R^3 are each n-butyl.

5. A compound according to any one of claims 2 to 4, wherein:

(a) R^4 is methyl and R^6 is methyl; or

20 (b) R^4 is ethyl and R^6 is ethyl; or

(c) R^4 is n-butyl and R^6 is n-butyl.

6. A compound according to claim 1, wherein the compound is selected from the group consisting of

tri-(n-butyl)methylphosphonium methylsulfate;

25 tri-(n-butyl)ethylphosphonium ethylsulfate;

tetra-(n-butyl)phosphonium n-butylsulfate;

triethyl-(n-butyl)phosphonium n-butylsulfate;

tetrabutylphosphonium dibutylphosphate;

tri-iso-butyl-butylphosphonium dibutylphosphate

N,N-dimethylimidazolium dimethylphosphate;

N-methyl-N-butylimidazolium dibutylphosphate; and

N-methyl-N-ethylimidazolium ethylethanephosphonate;

and

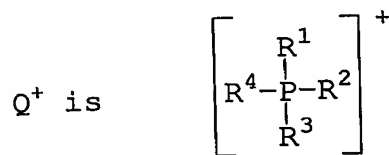
tributylmethylphosphonium

methyltrifluoromethanephosphonate.

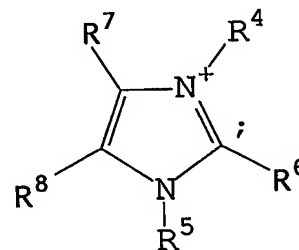
7. A process for preparing a compound of formula (I):



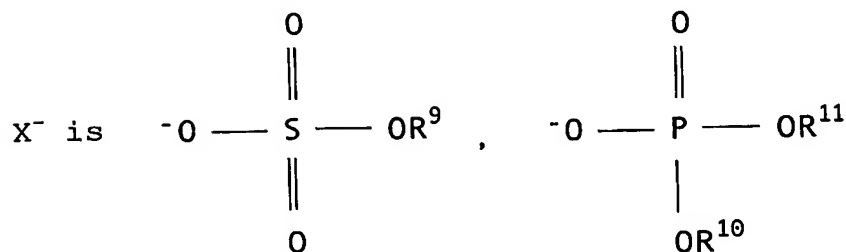
wherein



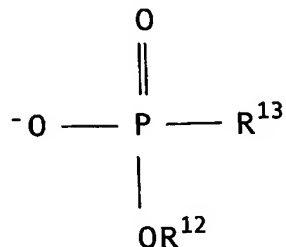
or



and



or



and wherein:

each of R^1 , R^2 , R^3 , R^4 , R^5 , R^9 , R^{10} , R^{11} , R^{12} , and R^{13} is independently a hydrocarbyl group;

each of R^6 , R^7 , and R^8 , is a hydrogen or hydrocarbyl
5 group;

with the provisoes that:

(i) when Q^+ is a phosphonium cation and X^- is a phosphate, or a phosphonate anion other than a phosphonate in which R^{13} is perfluorohydrocarbyl, then R^1 , R^2 , R^3 , and R^4 each
10 has three or more carbon atoms;

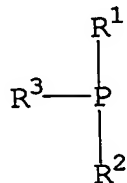
(ii) when Q^+ is a phosphonium cation and X^- is a sulfate then the sum of carbon atoms in R^1 , R^2 , R^3 , and R^4 is greater than 4;

(iii) when Q^+ is an imidazolium cation, X^- is not a
15 sulfate; and

(iv) when Q^+ is a phosphonium cation, X^- is methylsulfate, and one of R^1 , R^2 , R^3 , and R^4 is methyl, the others of R^1 , R^2 , R^3 , and R^4 cannot be 2-cyanoethyl.

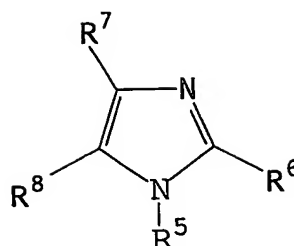
the process comprising reacting a compound of formula (II):

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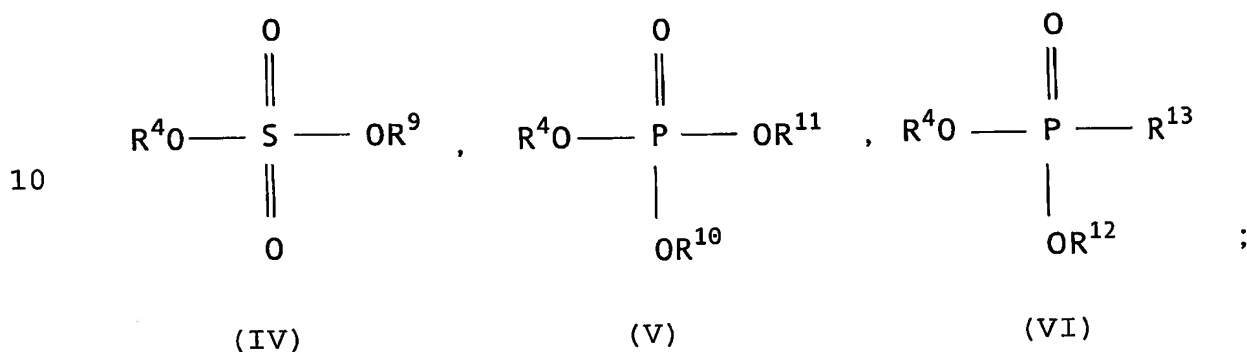
wherein each of R^1 , R^2 , and R^3 is independently a hydrocarbyl group, or formula (III):

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5 wherein R^5 is a hydrocarbyl group, and cation of R^6 , R^7 and R^8 is independently a hydrogen or hydrocarbyl group,

with a compound defined by one of the following formulae:



wherein each of R^4 , R^9 , R^{10} , R^{11} , R^{12} and R^{13} is a hydrocarbyl group.

15 8. The process of claim 7, wherein the reaction is carried out in the absence of solvent.

9. The process of claim 7, wherein Q^+ is a tetralkylphosphonium and X^- is an alkylsulfate anion.

10. The process of claim 9, wherein R^1 , R^2 , and R^3 are
20 hydrocarbyl groups with three or more carbon atoms.

11. The process of claim 9, wherein R^1 , R^2 , and R^3 are each n-butyl.

12. The process of any one of claims 7 to 11, wherein

(a) R^4 and R^6 are both methyl; or

(b) R^4 and R^6 are both ethyl; or

(c) R^4 and R^6 are both n-butyl.

13. The process of claim 7 or 8, wherein the compound of formula (I) is selected from the group consisting of

- 5 tri-(n-butyl)methylphosphonium methylsulfate;
tri-(n-butyl)ethylphosphonium ethylsulfate;
tetra-(n-butyl)phosphonium n-butylsulfate;
triethyl-(n-butyl)phosphonium n-butylsulfate;
tetrabutylphosphonium dibutylphosphate;
10 tri-iso-butyl-butylphosphonium dibutylphosphate
N,N-dimethylimidazolium dimethylphosphate;
N-methyl-N-butylimidazolium dibutylphosphate; and
N-methyl-N-ethylimidazolium ethylethanephosphonate;
and
15 tributylmethylphosphonium
methyltrifluoromethanephosphonate.